Sheet 1 of 1									
FORM PTO 1449 (m	•	7.	_	ATTY DOCKET NO. 2003_1832		SERIAL 10/734		<u>-</u>	
PAG	NA TVE	TMENT OF COMMERC D TRADEMARK OFFIC NCES CITED BY APPLICAN	E	APPLICANT Mitsuaki OSHIMA					
Date	seve Submit	NCES CITED BY APPLICAN ral sheets if necessary) ted to PTO: July 22, 200	4	FILING DATE December 15, 2003	GROUP 2615				
TENTA TRANSPE			U.	S. PATENT DOCUMENTS					
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	С	LASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	AA								
	AB								
	AC								
	AD								
<u></u>	AE								
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	AG								
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			FORE	IGN PATENT DOCUMENTS	s				
		DOCUMENT NUMBER	DATE	COUNTRY	С	LASS	SUBCLASS	TRANSLATION YES NO	
R	AJ	2-154583	6-13-90	Japan				abstract	
	AK								
-	AL			<u> </u>					
	АМ								
	AN								
		OTHER	DOCUMENT(S) (	ncluding Author, Title, Date, I	Pertinent Pages	, Etc.)			
M	AO	Shigeki MORIYAMA Spring National Cor Part 2, p. 406, Marc	vention Record	Propagation Characte d, The Institute of Elec	ristics at VH ctronics, Info	F and UI rmation	HF bands in U	rban Area", 19 cation Engine	991 ers,
Re	AP	Yasuhiro ITO et al., Terrestrial Digital Te	"Adaptive Wei elevision Broad	ghted Code Division N casting", ITE Technica	fultiplexing ( al Report Vo	(AW-CDN ol. 17, No	//) Transmissio . 13, pp 27-32	n System for February 25	, 1993
	AQ						,		
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Sheet 1 of 7											
FORM PTO 1449 (m		ENT OF COMMER	CE	ATTY DOCKET NO. 2003_1832		SERIAL NEW	NO.				
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				U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CL	\ss			PRIATE		
Re	AA	5,311,550	5-10-94	Fouche et al.							
Re	AB	4,630,287	12-16-86	Armstrong							
R	AC	4,271,527	6-2-81	Armstrong	-						
H	AD	5,050,188	9-17-91	Oirr	`_						
M	AE	5,398,073	3-14-95	Wei							
H	AF	5,452,015	9-19-95	Hulyalkar				9			
Re	AG	5,565,932	10-15-96	Citta et al.				<del></del>			
fol	АН	5,481,412	1-2-96	Bannai et al.							
M	Al 3,909,721 9-30-75 Bussgang et al.										
				FOREIGN PATENT DOCUMENTS	,		<b>.</b>				
		DOCUMENT NUMBER	DATE	COUNTRY	CL	ASS	SUBCLASS	TRANSLATION YES NO			
le	AJ	0365431	4-25-90	EP	<	-			Х		
de	AK	0485105	5-13-92	EP	,	<del>-</del>		Х			
Re	AL	92/14343	8-20-92	wo	-			X			
la	AM	89/08366	9-8-89	wo	_			Х			
K	AN	0031193	7-1-81	EP	<			Х			
	,	01	HER DOCUMENT	(S) (Including Author, Title, Date, Pert	inent Page	s, Etc.)	_				
de	AO	Shinji Matsumo Telecommunica	to et al., "200 l ations Review,	Mb/s 16 QAM Digital Radio-Re January 1982, vol. 24, no. 1,	elay Sys pages 6	tem Op 5-73.	erating in 4 and	5 GHz Ban	ds", Japan		
Re	AP			coding of Television Images, Per 2, 1990, no. 3, pages 259-2		Compatil	ble System", Sig	nal Process	sing		
fl	AQ Mitsuaki Oshima, "Constellation-Code Division Multiplex for Digital HDTV", IEEE, 1992, pages 1086-1092.										
EXAMINER	R	Stut	Cha	DATE CONSIDE	ERED	8/	31/05	<u>.                                    </u>			

Sheet 2 of 7											
FORM PTO 1449 (m		ENT OF COMMER	CE	ATTY DOCKET NO. 2003_1832		SERIAL NEW	NO.				
PATEN	T AND 1	TRADEMARK OFFICES CITED BY APPLICA	CE	APPLICANT Mitsuaki OSHIMA							
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				U.S. PATENT DOCUMENTS	<del></del> -						
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLA	ss	SUBCLASS	CLASS FILING DATE IF APPROPRIATE			
RL	AA	4,227,152	10-7-80	Godard et al.							
R	AB	4,525,846	6-25-85	Bremer et al.							
R	AC	4,751,478	6-14-88	Yoshida					<b>-</b>		
H	AD	4,891,806	1-2-90	Farias et al.							
Re	ΑE	4,903,125	2-20-90	Parker	_						
Re	AF	4,937,844	6-26-90	Kao							
Re	AG	5,164,963	11-17-92	Lawrence et al.							
Re	АН	5,555,275	9-1996	Oshima		<					
RL	Al	5,565,926	10-15-96	6 Bryan et al.							
				FOREIGN PATENT DOCUMENTS			· · · · · · · · · · · · · · · · · · ·				
		DOCUMENT NUMBER	DATE	COUNTRY	CL	ASS	SUBCLASS	LATION NO			
M	AJ	0311188	4-12-89	EP	<		7	х			
Re	AK	0329158	8-23-89	EP				х			
h	AL	64-5135	1-10-89	JP	_			X			
Au	AM	63-28145	2-5-88	JP				х			
M	AN	62-133842	6-17-87	JP				×			
		01	HER DOCUMENT	(S) (Including Author, Title, Date, Pert	inent Page	s, Etc.)					
Mo	AO	Tricia Hill et al., COM-31, June	"A Performano 1983, no. 6, pa	ce Study of NLA 64-State QAN ges 821-826.	M", IEEE	Transa	actions on Comr	munications	, vol.		
Re	AP	Hideki Ishio et a	il., "A Proposa	of a Carrier Digital Transmis	sion Sys	stem Us	ing Multi-Level A	APSK", pag	es 1-20.		
Re	AQ	Shanmugam, "C	Digital and Ana	log Communication Systems	1979, p	o. 272.					
	1	1	01-				10.10				
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation and in conformance and not considered. Include cop, this form with next communication to applicant.

Sheet 3 of 7										
FORM PTO 1449 ( <i>m</i>		ENT OF COMMER	ce	ATTY DOCKET NO. 2003_1832		SERIAL NEW	. NO.	, <del>-</del>		
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				U.S. PATENT DOCUMENTS						
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CIV	ASS	SUBCLASS	FILING DATE IF APPROPRIATE		
de	AA	5,105,442	4-14-92	Wei						
Re	АВ	4,048,572	9-13-77	Dogliotti et al.						
Re	AC	5,282,019	1-25-94	Basile et al.	,					
K,	AD	5,311,547	5-10-94	Wei	-					
M	AE	5,267,021	11-30-93	Ramchandran et al.						
H	AF	5,038,219	8-6-91	Yamashita et al.	•-					
ll	AG	5,087,975	2-11-92	Citta et al.	Citta et al.					
De	АН	5,086,340	2-4-92	Citta et al.	-					
H	AI	5,243,629	9-7-93	Wei						
				FOREIGN PATENT DOCUMENTS						
		DOCUMENT NUMBER	DATE	COUNTRY	CL	ASS	SUBCLASS	SUBCLASS TRANSLATION YES		
ll	AJ	53-137657	12-1-78	JP				X		
RL	AK	0282298	9-14-88	Europe				×		
Re	AL	0392538	10-17-90	Europe				X		
Ri	АМ	0490552	6-17-92	Europe			<u> </u>	×		
K	AN	0506400	9-30-92	Europe	<u> </u>			х		
				(S) (Including Author, Title, Date, Per						
U	AO	Khaled Fazel e 1085	t al., Combine	d multilevel coding and multire	esolution	n modul	ation, February 8	3, 1993, Pa	ges 1081-	
A	AP	P. Hoeher et al Global Telecon	., Performance munications (	of an RCPC-Coded OFDM-t Conference "Globecom '91", D	pased Di December	igital Au er 2-5, 1	dio Broadcasting 991, Vol. 1 of 3,	g (DAB) Sys Pages 2.1.	tem, IEE 1 - 2.1.7	
Re	AQ	K. M. Uz et al., Pages 283-292		Itiresolution source coding an	nd modu	lation fo	r digital broadca	st of HDTV	, 1992,	
EXAMINER	No	Gost	1/100	DATE CONSID	DERED	8/	3//05	-		

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Sheet 4 of 7											
FORM PTO 1449 (#		IENT OF COMMER	CE	ATTY DOCKET NO. 2003_1832		SERIAL NEW	. NO.				
PATEN	T AND	TRADEMARK OFFICES CITED BY APPLICA	CE	APPLICANT Mitsuaki OSHIMA							
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				U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CI	ASS	SUBCLASS FILING DATE IF APPROPRIATE				
R	AA	5,142,353	8-25-92	Kageyama et al.							
re	АВ	5,197,061	3-23-93	Halbert-Lassalle et al.					,		
Al	AC	5,291,289	3-1-94	Hulyalkar et al.					,		
le	AD	5,166,924	11-24-92	Moose	_				>		
RN	AE	4,940,954	7-10-90	Aubert et al.					•		
M	AF	5,128,758	7-7-92	Azadegan et al.							
RU	AG	5,038,402	8-6-91	Robbins		·		•			
Re	АН	5,638,112	6-10-97	Bestler et al.							
				FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS				NSLATION YES NO		
de	Al	0448492A1	9-25-91	Europe			7		x		
Le	AJ	0485108A2	5-13-92	Europe	_			Х			
la	AK	0525641A2	2-3-93	Europe	_			X			
Re	AL	0540231A2	5-5-93	Europe		<u>-</u>		x			
Re	АМ	0531046A2	3-10-93	Europe				х			
	γ	ОТ	HER DOCUMENT	(S) (Including Author, Title, Date, Pert	inent Page	es, Etc.)					
De	AN	K. M. Uz et al., I	Multiresolution	Source and Channel Coding	for Digit	tal Broad	dcast of HDTV,	1992, Page	s 61-69.		
De.	AO	Nambi Seshadri Fading Channel	et al., Multi-L , Vol. 4, No. 3	evel Block Coded Modulation , May-June 1993, Pages 325-	s with U. 334.	nequal (	Error Protection	for the Ray	leigh		
Re	AP	William F. Schre	eiber, Spread-	Spectrum Television Broadca	sting, Sf	MPTE J	ournal, August 1	992, Page:	538-549.		
EXAMINER	1	Notes	f Oh	DATE CONSIDE	ERED	8	31/05				

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop. this form with next communication to applicant.

Sheet 5 of 7									
FORM PTO 1449 (		MENT OF COMME	RCE	ATTY DOCKET NO. 2003_1832		SERIA NEW			
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		al sheets if necessary) PTO: December 1		FILING DATE December 15, 2003		GROUP			
				U.S. PATENT DOCUMENTS					
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLA	ss	SUBCLASS	FILING I	DATE IF PRIATE
RI	AA	5,063,445	11-5-91	Nishizawa et al.					>
K	АВ	5,819,000	10-6-98	Oshima		\ <del></del>			
R	AC	5,999,569	12-7-99	Oshima					
pe	AD	5,892,879	4-6-99	Oshima					
				FOREIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	SUBCLASS	TRANS:			
Re	AE	7-99522	4-11-95	Japan				abstract	
Le	AF	7-79415	3-20-95	Japan	Japan			abstract	
Re	AG	5-75568	3-26-93	Japan	Japan			abstract	
RC	АН	86-07223	12-4-86	wo	-			х	
de	Al	2 187 611	9-9-87	Great Britain				х	•
Rl	AJ	85/04541	10-10-85	wo				х	
RE	AK	04-196822	7-16-92	Japan				abstract	
RL	AL	2-166979	6-27-90	Japan				abstract	
De	АМ	64-74836	3-20-89	Japan				abstract	
PL	AN	53-108215	9-20-78	Japan				abstract	
	<del></del>	ОТ	HER DOCUMENT	S) (Including Author, Title, Date, Per	tinent Pages	Etc.)			
Re	AO	Martin Vetterli e Systems and Si	t al., Multiresol gnal Processin	ution Coding Techniques for g, Volume 3, May 1992, Pag	Digital Te	levisio 17.	n: A Review, M	ultidimensio	nal
pl	AP	Ezio Biglieri et a	II., Introduction	to Trellis-Coded Modulation	with Appl	ication	s, April 6, 1992,	Pages 173-	207.
Re	AQ	English Langua	ge Abstract of I	European Patent No. 93 30 7	7575		1 1 1 1 1 1 1		
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LIST OF R	EFEREN	TRADEMARK OFF	CANT(S)	APPLICANT Mitsuaki OSHIMA								
T. (2)		PTO: December 1		FILING DATE December 15, 2003			GROUP					
				U.S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLA	SS	SUBCLASS	FILING E				
H	AA	4,636,876	1-13-87	Schwartz								
RL	АВ	4,855,692	8-8-89	Kennard et al.					· <u>·</u>			
RC	AC	4,873,701	10-10-89	Tretter								
RL	AD	4,958,360	9-18-90	Sari	<u> </u>							
RL	AE	5,115,453	5-19-92	Calderbank et al.								
Al	AF	5,168,509	12-1-92	Nakamura et al.								
RL	AG	5,600,672	2-4-97	Oshima et al.								
RC	АН	6,049,651	4-11-00	Oshima								
RL	AI	6,256,357	7-3-01	Oshima								
- <u> </u>		,		OREIGN PATENT DOCUMENTS								
1	ļ	DOCUMENT NUMBER	DATE	COUNTRY	CLA	ss	SUBCLASS	TRANSL YES	ATION ON			
<u>RL</u>	AJ	0122805	10-24-84	EP	_	<del></del>	-	х				
KL	AK	63-180280	7-25-88	JP				abstract				
RL	AL	64-68144	3-14-89	Japan			->	abstract				
ple	АМ	5-218978	8-27-93	Japan					Х			
<u>fl</u>	AN	3-69295	3-25-91	Japan	-				Х			
		ОТ	HER DOCUMENT	S) (Including Author, Title, Date, Pen	tinent Pages	, Etc.)						
RL	AO	Kazuhiko Nitado Conference on (	ori, Synthesis o Communication	f Multichannel Orthogonal V s, June 14-16, 1976, Volume	SB Signal e 1, Page	s by Qu s 3-25 -	adrature Metho 3-29.	od, 1976 Inte	rnational			
R	AP	Thomas M. Cov	er, Broadcast (	Channels, IEEE Transactions	s on Inforr	nation 1	heory, Januar	y 1972, Page	es 2-14			
A	AQ	*Optimum Weigl COM-26, No. 6,	hted PCM for S June 1978, Pa	peech Signals*, Sundberg, li ges 872-881.	EEE Tran	saction	s on Communic	cations, Volu	me			
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Sheet 7 of 7											
	DEPART	MENT OF COMME		ATTY DOCKET NO. 2003_1832		SERIAI NEW		•			
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				U.S. PATENT DOCUMENTS	U.S. PATENT DOCUMENTS						
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLA	ss	SUBCLASS	BCLASS FILING DATE IF APPROPRIATE			
M	AA	5,170,413	12-8-92	Hess et al.							
	АВ										
	AC										
				FOREIGN PATENT DOCUMENTS							
· .		DOCUMENT NUMBER	DATE	COUNTRY CLASS			SUBCLASS	TRANS YES	LATION SNO		
M_	AD	57-39629	3-4-82	Japan				abstract			
Re	AE	58-161547	9-26-83	Japan				abstract			
R	AF	63-180222	7-25-88	Japan	_			abstract			
Ke_	AG	92/22162	12-10-92	wo				x			
RU	AH	2-94814	4-5-90	Japan				abstract			
<u>K</u>	Al	61-70861	4-11-86	Japan				abstract			
	AJ	2-218279	8-30-90	Japan				abstract			
Ky.	AK	2,095,435	5-10-92	Canada				Х			
JU.	AL	91/20137	12-26-91	wo	-			х			
W/	AM	2-141049	5-30-90	Japan	,				x		
<u>RU</u>	AN	2-195732	8-2-90	Japan				abstract			
III.	AO	5-167633	7-2-93	Japan				abstract			
	AP	2-260726	10-23-90	Japan					Х		
	AQ	58-161427	9-26-83	Japan				abstract			
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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE		NAME	CL	ASS	SUBCLASS	FILING DA					
Rlz	AA	3,824,548	7-16-74	Sulli	ivan et al.									
pe	AB	3,959,726	5-25-76	Hino	shita et al.									
Re	AC	4,303,939	12-1-81	Stepl	hens et al.									
re	AD	4,303,941	12-1-81	Ma	arti et al.									
Re	AE	4,309,726	1-5-82	Tan	aka et al.									
Re	AF	4,535,352	8-85	F	laskell									
Re	AG	4,564,858	1-14-86	Resch										
Re	АН	4,581,639	4-8-86	Judge —				,						
M	Al	4,769,819	9-6-88	Mats	Matsutani et al.									
ll	AJ	4,794,447	12-27-88	Tr	sinberg									
Re	AK	4,800,426	1-24-89	(	Glenn									
K	AL	4,817,192	3-28-89	Phil	llips et al.									
R	AM	5,007,088	4-9-91	O	oi et al.									
pe	AN	5,029,003	7-91	Jonn	nalagadda									
'le	АО	5,134,464	7-28-92	Bas	sile et al.	-								
			FORE	IGN PATENT	DOCUMENTS									
		DOCUMENT NUMBER	DATE	cc	OUNTRY	CL	ASS	SUBCLASS	TRANSLA YES	TION NO				
RC	AP	5-327807 /	12-10-93		Japan	-			abstract					
		OTHER	DOCUMENT(S) (I	ncluding Autho	or, Title, Date, Pertine	nt Pages,	Etc.)		·					
RC	AQ	Masafumi SAITO et						Environment",	1991					
Re	AR	Ryutaro OHMOTO e	t al., "π/4-shift	QPSK Sub	carrier Transmis	ssion", '	1991							
EXAMINER	R	Sext Ch	-di-		DATE CONSIDER	ED	8/3	1/05						

Sheet 2 of 2 INFORMATION DISCLOSURE STATEMENT FORM PTO 1449 (modified) (4) SERIAL NO. ATTY DOCKET NO. 10/734,314 2003 1832 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE APPLICANT Mitsuaki OSHIMA LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary ) GROUP **FILING DATE** Date Submitted to PTO: June 16, 2005 2615 December 15, 2003 U.S. PATENT DOCUMENTS CLASS SUBCLASS FILING DATE IF \*EXAMINER DOCUMENT DATE NAME NUMBER **APPROPRIATE** INITIAL AA 5,181,112 1-19-93 Citta et al. 12-27-94 Lane et al. AB 5,377,051 AC 5.400.084 3-21-95 Scarpa AD 5,576,902 11-19-96 Lane et al. 6-8-93 Fazel et al. AE 5,218,622 AF 5,561,468 10-1-96 Bryan et al. 5.598.220 1-97 Citta et al. AG 5-25-93 AΗ 5,214,656 Chung et al. ΑI 5,802,241 9-1-98 Oshima **FOREIGN PATENT DOCUMENTS** DOCUMENT SUBCLASS DATE COUNTRY **CLASS** TRANSLATION NUMBER **YES** AJ 7-264148 / 10-13-95 Japan abstract 7-322219 / AK 12-8-95 abstract Japan AL 3-48587 3-1-91 abstract Japan AM AN OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.) AO J. A. C. Bingham, "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come", IEEE Communications Magazine, Vol. 28, May 1990, pages 5-8 and 11-14 AP B. Hirosaki, "An Orthogonally Multiplexed QAM System Using the Discrete Fourier Transform", IEEE Transactions on Communications, Vol. Com-29, No. 7, July 1981, pages 982-989 L. J. Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division AQ Multiplexing", IEEE Transactions on Communications, Vol. Com-33, No. 7, July 1985, pages 665-675 and Annex **EXAMINER** DATE CONSIDERED